

**METHOD AND APPARATUS FOR ADAPTIVE SIGNALING IN A QAM  
COMMUNICATIONS SYSTEM**

**ABSTRACT OF THE DISCLOSURE**

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A method and apparatus to adaptively puncture bits within QAM modulated data symbols transmitted in a communication system in order to effect a signaling channel. The method and apparatus utilize inherent characteristics of a particular mapping scheme for the QAM constellation to selectively puncture particular bits within a data symbol with signaling information and predetermined binary values to selectively increase the log-likelihood ratio gains of those particular bits punctured with the signaling information. The log-likelihood ratios are used to obtain the signaling information and, thus, increasing the gain of the log-likelihood ratios affords greater reliability for the signaling information without increasing the required system resources.

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